Synopsys Introduces Machine Learning-Based Auto Segmentation Module for 3D Image Processing

New Machine Learning-Based Simpleware ScanIP Option Provides 20-50 Times Speedup and Precisely Automates Previously Manual Segmentation for Medical Device Design and Pre-Surgical Planning

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Highlights:

- New ScanIP software module, Simpleware AS Ortho, uses automated algorithms to shorten segmentation time and produce accurate results significantly faster for medical image data
- A fully scalable and high ROI solution that fits the tight budgets of the medical device industry

Synopsys, Inc. (Nasdaq: SNPS) today announced the release of a major update to Simpleware™ ScanIP software, which extends its capabilities for segmenting anatomical regions through a new module, Simpleware AS Ortho (Auto Segmenter for Orthopedics). This new product offering is a machine learning (ML)-based auto segmentation module that builds on Synopsys' ScanIP software, a comprehensive solution for 3D image processing and segmenting images generated by computed tomography (CT) or magnetic resonance imaging (MRI) scanners.

The newly launched ML-based Simpleware AS Ortho is a module specifically designed for segmentation needs in the hips and knees. When applying this automated option with Synopsys' ScanIP software to run their analysis, users will easily see a 20 to 50 times faster rate of segmentation for clinical images. This revolutionary technology is fully scalable, and while helping to achieve more consistency and increased reliability in biomechanical compatibility, it can also dramatically streamline the workflow process in both pre-surgical planning and medical device design. Users will thus achieve significant cost-savings in the product development cycle.

"Image segmentation of MRI and CT scans presents a significant challenge for our surgical and engineering multidisciplinary teams. We're excited to collaborate with the Simpleware product group at Synopsys for solutions to this challenge," said Johann Henckel MD, Orthopedic Surgeon, Royal National Orthopaedic Hospital, UK. "What is currently a laborious process that occupies significant engineering resources and time can now be completed quickly, accurately and with less variability, promising a scalable solution for generating high-fidelity patient specific models, surgical tools and bespoke implants."

Based on research by the journal *Orthopedic Surgery,* total knee arthroplasties (TKAs) in the USA will grow from 719,000 in 2015 to 3.48 million by 2030, while total hip arthroplasties (THAs) will almost double from 332,000 to 572,000 in the same period. This new ML-based product offering is an exciting new step for Synopsys' role in these fast-growing healthcare medical markets.

"The demand for image-based modeling of human anatomy tools with ML-enabled intelligence is rapidly growing, especially in markets that include patient specific workflows for medical devices, surgical guides and planning, and *in silico* clinical trials," said Terry Ma, vice president of engineering at Synopsys. "We're looking forward to collaborating with more medical device companies to solve their long-standing image segmentation challenges."

Availability and Resources

Synopsys' Simpleware AS Ortho (Auto Segmenter for Orthopedics) is launching inMarch 2020 as a Simpleware ScanIP software add-on module for hips and knees. In time, further modules will be added to provide automated segmentation options for other anatomical regions. For users wanting any customization, or workflows applied to different anatomies, Synopsys' Simpleware Custom Modeler option is also available as a fully tailored and automated solution. For more product information:

- Attend our webinar on March 31, 2020
- Visit our product webpages or contact us directly at simpleware@synopsys.com

About Synopsys

Synopsys, Inc. (Nasdaq: SNPS) is the Silicon to Software™ partner for innovative companies developing the electronic products and software applications we rely on every day. As the world's 15th largest software company, Synopsys has a long history of being a global leader in electronic design automation (EDA) and semiconductor IP and is also growing its leadership in software security and quality solutions. Whether you're a system-on-chip (SoC) designer creating advanced semiconductors, or a software developer writing applications that require the highest security and quality, Synopsys has the solutions needed to

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Editorial Contact:
Simone Souza
Synopsys, Inc.
650-584-6454
simone@synopsys.com

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